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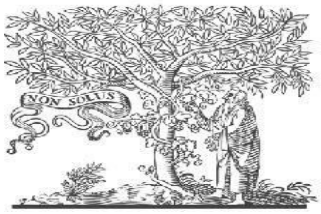

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Paper Authors
Mr.CH Vijaya Kumar,Pathakala Rohit, Mohammed Fayas, Mohammed Ashraf, Gandla Bhanu Prakash

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SURVEY ON CODE GENERATOR BASED ON VOICE COMMANDS

Mr.CH Vijaya Kumar[1]
Pathakala Rohit[2], Mohammed Fayas[3], Mohammed Ashraf[4], Gandla Bhanu Prakash[5]

[1]Associate professor, Department of Computer Science and Engineering, ACE Engineering College, Hyderabad, Telangana, India. e-mail:vijay.chandarapu@gmail.com

[2,3,4,5] IV B. Tech Students, Department of Computer Science and Engineering, ACE Engineering College, Hyderabad, Telangana, India.
e-mail: rohitrohit51765@gmail.com[2], ashraf17042001@gmail.com[3], adilfayaz01@gmail.com[4],bhgandla32@gmail.com[5]

ABSTRACT: Now-a-days world is running on voice commands devices such as Alexa. As current generation makes the work easy by using different ways, we also implemented a project voice-based code generator that makes coding easier for physically challenged programmers. A voice-based code generator also makes work of developer faster and efficient. As approach of voice-based code generator is it detects voice commands through user" Vocal" and detects the user intention process it into command. According to voice commands it creates the loops, variables, functions etc based on some basic instructions for user to make proper voice commands

Keywords: Natural Language, Voice Command, Compile, Translate, Instruction

I. INTRODUCTION

The meta world we are living now is a development of two digits 0 and 1, as it created super computers, high tech VFX Graphics etc. As we can see every technology, we are enjoying are developed using programming. As programming is a hard task that mankind is suffering since from its invention. Some technology takes 3 days to develop and some takes 30 years to develop which is based on number of persons working on it to type the code, so to make the development a boost our team came together for solution **voice-based code generator** which makes the programmers work easier.

Future is moving into the handsfree technology which makes more convenient for use. As these ideas getting trend the top companies are implementing assistants such as Amazon Echo, Google home, Siri by apple etc. By above usage of the voice assistants indicates the people are more interesting on voice-based technologies. It also has huge future scope in this IT world.

Voice based code generator is a code generator using voice commands based

on user voice recognition. To develop this project, we divided it into four major parts. They are

1.Voice based input from user.

2.Processing the input.

3.Generating Code based on input.

4.Compiling the Code.

To take voice input from user we used Google Voice API, in next step it is major step of our project where code compilation is done it requires huge amount of storage for libraries and JDK data.

Google API converts the voice instructions into sentence and break the whole sentence into words. Then code generation is done by our algorithm which detects user commands based on keywords and phrases. In further process these keywords and phrases are combined to generate the code using algorithm.

As we have used limited amount of syntax and functions, it is less complicated but the algorithm will be more complicated. Mostly it allows to use external libraries, methods and complex sections.

As our project make an impact on real world, we developed this project. Without having any impact in our project, it doesn't make any sense. One of the main impacts that made us to work on this project is to make tech programming faster and easier way for new interns to programming. Today's growth in technology depends on programming and developing so it is important to every engineer must learn coding from their early age.

LITERATURE SURVEY

In recent years, according to a survey that there has been an increase in the quantity of software engineers experiencing Repetitive Strain injury [RSI] which makes big problem. The programmers are fed up on typing thousands of lines of code and RSI strain, here is the good solution voice-based code generator. It is good solution to reduce amount typing more lines of code while programming.

As we are not the first who are working on these voice-based code generator. A lot of research and development has done related to voice recognition. Natural Language Processing [NLP] is more demanding in technologies. For this project we researched many topics on language processing such as voice to text conversion software and text to speech conversion software.

Stephen C. Arnold, John Goldthwaite, Leo Mark was worked on a Programming by Voice system and proposed in their paper. Here they developed the Vocal Programming for the programmer who has RSI i.e., repetitive stress injuries. This paper constructs a structure of generator which enables the user to program by voice. This generator can also use to help entering the data and making XML reports.

Snell Investigated on coding by Voice and Development of a Toolkit for Writing Voice-Controlled Applications. Then Snell

developed an editor called Code Talker. which is works independent of platform with any speech recognition program. The objective of the code talker was voice programming editor which introduced by Snell a toolkit for users and developers to work on any voice controlling coding application. The heart of Code Talker is controlled by voice. Code Talker supports HTML and Java where also has another software programming languages. Although it's was all-in-package, there are some issues too. One need to pre-install a voice program and another need to compile code in command prompt.

Peter Bednr worked on Vocabulary matching for information extraction language and introduced a paper on it, in this paper Bednr specified some the specification of the language with the extensions. Where these extensions arrange the words in sequence and checks the annotations with vocabulary. This paper acknowledges the syntax extensions and structure of the vocabulary designed for efficient matching and low storage requirements.

Peter Bednr researched on paper titled Unified parsing and information extraction language. It derives the specification of parsing and data abstraction. Where these parsing and data abstraction is used for natural language processing [NLP]. The language which taken as input is recognised through concepts of tokenization using the regular expressions. They specify this tokenization using regular expression and graph mapping designs. The concept tokenization plays major role in Peter Bendr paper has the input taken through voice is extracted and divided into sequence of tokens based on annotation rules and graph annotation schema rules. The NLP in this process is used to process the speech into the general sequence of tokens or graph as well. Here in this project the input of compiler is converted into speech and generates tokens and performs expression according to the input and also compiles the entire program.

Jennifer L. Leopold and Allen L. Ambler proposed a paper titled "*Keyboard Less Visual Programming Using Voice*". By these proposed paper authors has developed a programming interface which interacts through communication activities. They developed a multimodal user interface design. This Multimodal user interface design is developed for improving the capacity of work to convert that has taken from voice. The main of this paper is develop the interface that work using voice and pen instead of mouse and keyboard. Using this reference, we used it in our project for keyboard less using voice and make it wireless coding. These authors motivated us through developing their software for systems have concentration on their efforts on voice recognition and gestures.

Year	Author	Technique/ Methodology	Advantages	Disadvantages
2000	**Stephen C. Arnold, John Goldt**	voice recognition and syntax-directed editor	Can program through voice	It was not for all languages

	hwaite, Leo Mark	generators.	commands	
2006	**Snell**	Java Tool kit	Can be performed through all available platforms	Voice command needed to be pre-installed
2018	**Peter Bednr**	Extensions arranges	Vocabulary made easy to speak and annotations are well used	Complex software and high storage
1997	**Jennifer L. Leopold and Allen L. Ambler**	developed a multimodal user interface design	All voice commands no mouse and no keyboard	No well efficient
2019	**Peter Bednr**	Natural processing language	The language will be spited into token	High processing time

Conclusion:

The Formulate team's work will advance the general knowledge of how to design programming environments for the general public. We argue that interfaces that allow users to "program" an application (in some sense of the word) are harder to develop than user interfaces that simply allow use of an application. Voice Code is intended to give non-disabled programmers an alternative to typing code and will also assist disabled programmers.

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